found to reflect alterations in adrenergic nerve function that have a critical influence on the adverse outcome of patients with congestive heart failure (CHF). This alteration has been shown to be of high prognostic value in comparison with resting hemodynamic indices in end-stage CHF patients. However, the comparison with another major prognostic index, peak exercise oxygen uptake (peak VO_2), has not yet been done.

We prospectively studied 93 consecutive ambulatory CHF patients (age 55 ± 10 years) with an ejection fraction <45% (mean 25 ± 10). Cardiac MIBG uptake was measured as the heart to mediastinum activity ratio on the planar image (10-min acquisition in the chest anterior wiew) obtained 4 h after a 111 to 148 MBq IV injection of I-123 MIBG (H/M, mean 133 ± 21%, normal values: 192 ± 42%). Peak VO_2 was measured during cycle exercise (mean 20 ± 6 ml/min/kg).

During a mean follow-up of 10 ± 8 months, 10 patients died and 22 had heart transplantation. Peak VO_2 ($p < 0.0001$) and MIBG H/M ($p = 0.02$) were predictive of death or transplantation by Cox univariate analysis. Using multivariate analysis, only peak VO_2 predicted outcome. When transplantation events were censored, only peak VO_2, normalized either by body weight or by predicted values, emerged as predictor of outcome ($p < 0.05$). Kaplan-Meier analysis confirmed the greater prognostic value of peak VO_2.

We conclude that in this population of ambulatory CHF patients, altered adrenergic nerve function has lower prognostic value than exercise capacity.

940-99 Myocardial Uptake of Radiolabeled Antimyosin Antibody Mirrors Histopathological Fibrosis in Experimental Aortic Regurgitation

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We have previously shown that (1) exuberant myocardial fibrosis invariably accompanies, and may cause, *myocytolysis* when chronic experimental aortic regurgitation (eAR) leads to heart failure (CHF) and (2) myocardial uptake of In-111-labeled antimyosin antibody (AA) in vivo is greater in chronic eAR than in acute eAR or normal. To validate AA uptake as an index of fibrosis in AR, we assessed relative heart AA concentration ([% injected dose/gm] × body wt) vs fibrosis score (Masson's Trichrome stain and a 100 point grid counting system) in 30 New Zealand white rabbits (19 with surgically induced severe AR, 11 sham-operated/normal) given 1–1.5 mCI In-111-labeled AA Fab Fragment (Myoscint) i.v. and sacrificed 48 hr later for tissue counting and histology. Fibrosis score in AR animals sacrificed subacutely (3–5 wks of AR; n = 11, 0 with CHF or subnormal ejection fraction [EF]) was 6.6 ± 4.3 vs 6.2 ± 1.8 for age matched controls (n = 5, NS); in chronic eAR animals (98–128 wks of AR; n = 8, 0 with CHF/subnormal EF) score was 8.3 ± 2.7 vs 5.3 ± 3.6 for age-matched controls (n = 6, $p < 0.1$). Among AR and age-matched control animals, relative heart AA concentration correlated with fibrosis score ($r = 0.6$, $p = 0.03$) despite absence of CHF or severe fibrosis. Thus in eAR, myocardial uptake of In-111-labeled AA quantitatively reflects myocardial fibrosis, probably pathogenic for myocardial damage, even when CHF is absent; therefore, external AA imaging may permit detection of fibrosis before cardiac functional and clinical deterioration in AR.

940-100 Effects of Transmyocardial Laser Revascularization on Myocardial Perfusion

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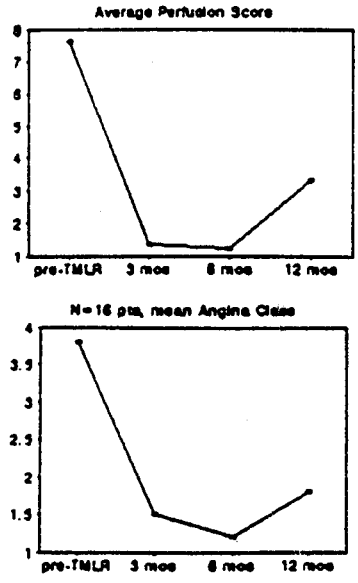
The effects of Transmyocardial Laser Revascularization (TMLR) on left ventricular (LV) Myocardial Perfusion (MP) have not been thoroughly examined. 16 consecutive patients (pts), ten men and six women (age range 45–76 yrs, mean 64) were followed at 3, 6 and 12 month intervals following TMLR. MP studies were obtained using IV dipyridamole over 4 min with 3.5 mCi of Thallium-201 (Tl) given 3 min later. MP imaging was done both immediately and at 3 hours following Tl infusion. Finally, 1.5 mCi of Tl was given and a third set of images was obtained. All images of the LV segments: anterior, lateral, inferior, posterior and septal were scored on a scale of 0–4+ by two independent observers who were blinded as to the lased segments (0 = nl, 2+ to 3+ = moderately severe ischemia, 4+ = severe ischemia). There were no deaths, myocardial infarctions or further revascularization procedures done on these pts during their first year of follow-up.



MP improves during the first year after TMLR, and parallels the changes observed in angina pectoris.

940-101 Accuracy of Spiral Computed Tomography for Identifying Internal Mammary Artery and Saphenous Vein Bypass Graft Patency

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Background: Spiral computed tomography (SCT) is an particularly useful imaging method for vascular structures, i.e. coronary grafts. Prior investigations concentrated on evaluation of saphenous vein grafts after surgery. The value of SCT in visualizing internal mammary bypass graft patency has not been well studied. Hence the aim of this study was to determine the value of high resolution SCT scanner in visualization both arterial and venous bypass grafts two years after surgery. *Methods:* Forty-nine patients (age 61.1 ± 7.9 years, 45 men) who had undergone CABG procedure were examined by SCT (Siemens Somatom plus 4) and angiography 22.2 ± 5.9 months after surgery (n = 49). In total, 134 bypass grafts (42 IMA and 92 venous grafts) were analyzed. With SCT contiguous data set of the heart was acquired which allowed segmental and three-dimensional visualization of the length of grafts. *Results:* The patency rate of the CABG, determined angiography was 75.7% (IMA, n = 36/42) and 73.9% (venous grafts n = 68/92). By SCT, 32 IMA and 64 venous grafts were diagnosed correctly as patent. Thus, the sensitivity was 88.9% (IMA) and 94.1% (venous grafts). None of correctly occluded venous grafts was diagnosed falsely patent by SCT (specificity 100%), where the specificity of IMA graft visualisation was somewhat lower (83.3%). The accuracy of SCT (predictive value for patency of a graft) was 88.1% (IMA) and 95.7% (venous CABG), respectively. Sensitivity, specificity and accuracy did not differ significantly between IMA or venous grafts (p = NS).

Conclusions: The recent generation of SCT scanner is able to assess the coronary graft patency with high sensitivity, specificity and accuracy. Both, saphenous vein grafts and IMA grafts can be assessed with an accuracy of about 90%. SCT is a fast and non invasive technique allowing the accurate evaluation of graft patency in the long term.

940-102 Are the Predictors of Hard and Soft Events Similar in Patients with Stable CAD?

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This study examined the predictors of hard events (death and non-fatal myocardial infarction [MI]) and soft events (late revascularization > 3 months) in 1007 pts with stable CAD who underwent coronary angiography and stress SPECT perfusion imaging. There were 680 men and 327 women aged 61 ± 11 years. During a mean follow-up of 46 ± 26 months, there were 159 hard events (67 deaths and 92 non-fatal MIs) and 195 soft events (PTCA or CABG). Uni- and multi-variate Cox survival analysis on important clinical, stress, catheterization and SPECT variables identified the extent of the total perfusion abnormality (fixed and reversible) as the best predictor of total